

[METAL OXIDE SEMICONDUCTOR DEVICE FOR ELECTROSTATIC DISCHARGE PROTECTION CIRCUIT]

Abstract

A MOS device for an electrostatic discharge protection circuit provided. A gate structure is disposed on the substrate. A source region and a drain region are formed in the substrate beside the gate structure. A doped layer is disposed underneath the source region and the drain region within the substrate but apart from the source region and the drain region. An extended doped region is disposed within the substrate adjacent to the doped layer and the source region. Two parasitic bipolar junction transistors (BJT) are formed in the MOS device. One BJT includes the drain region, the substrate and the source region. Another BJT includes the drain region, the substrate and the doped layer. A discharge current flowing into the drain region is channeled to a common voltage terminal via these two parasitic bipolar junction transistors.